

Remarks

This is a complete response to the Office Action mailed December 21, 2006. The amendments and accompanying remarks are proper, do not introduce new matter, are not narrowing of claim scope in view of a rejection over a cited reference, and place the application in proper condition for allowance of all pending claims.

In the absence of the requested reconsideration, the remarks further serve to explain why this case is not presently in condition for appeal.

Rejection Under Section 102

Claims 1-4, 8, 9, 16, 17, 21, 25, and 27-34 stand finally rejected as being anticipated by newly cited Hashemi '052. This rejection is respectfully traversed.

Final Rejection is Premature

The Examiner based the final rejection on Hashemi '052, which is a new reference not previously in the record. However, the Examiner is given clear guidance that the final rejection is not appropriate given the facts of this case:

Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). (MPEP 706.07(a), emphasis added)

The Examiner's new ground of rejection was not necessitated by Applicant's amendment; rather it was necessitated because the Examiner's first rejection was based on a clearly erroneous claim construction. Particularly, Applicant pointed out in the record that the Examiner's anticipatory rejection of independent claims 1, 16, 21, and 25 was clearly

erroneous because Menon '984 does not identically disclose *data storage units*, each defined in terms of a *plurality of separate storage domains* as originally claimed. Rather, the Examiner erroneously construed *data storage units* as being anticipated by the individual data blocks of the array in FIG. 2 of Menon '984. (see Applicant's Response of 11/3/2006, pg. 10) Likewise, Applicant pointed out in the record that the Examiner's obviousness rejection of independent claim 18 was clearly erroneous for the same reason. (see Applicant's Response of 11/3/2006, pg. 13) Furthermore, Applicant pointed out in the record that the Examiner's rejection of the *reallocating* step of claim 18 was unsubstantiated, and formally requested either an affidavit in accordance with 37 CFR 1.104(d)(2) or the citation of a reference to substantiate the rejection. The Examiner provided neither in the final rejection.

Despite the clearly erroneous claim construction in the first rejection, Applicant clearly stated in the record that the amendments were made "solely in order to more particularly point out and distinctly claim the present embodiments...." (see Applicant's Response of 11/3/2006 pg. 10, 11, 13, and 14) The Examiner does not rebut Applicant's assertion that the first rejection was clearly erroneous. Rather, the Examiner's switching from one reference to a newly cited reference in rejecting claims of substantially the same subject matter effectively defeats the intended goal of reaching a clearly defined issue that is appropriate for a final rejection. (MPEP 706.07)

Furthermore, the Examiner's new ground of rejection is not based on information submitted in an information disclosure statement under 37 CFR 1.97(c).

Therefore, the final rejection is clearly premature. Reconsideration and withdrawal of the final rejection are respectfully requested.

Absent the requested reconsideration, a Pre-Appeal Brief Panel must find in the underlying facts "substantial evidence" that adequately supports the Examiner's legal

conclusion that the final rejection was proper. This approach is consonant with the Office's obligation to develop an evidentiary basis for its factual findings to allow for judicial review under the substantial evidence standard that is both deferential and meaningful. *see In re Lee*, 277 F.3d 1338, 1344 (Fed. Cir. 2002).

Weighing the facts in this case, Applicant should not be forced to proceed to appeal. Particularly, this case is not in condition for appeal due at least to the unresolved factual issue the Examiner made the second action final when it was neither necessitated by Applicant's amendment nor based on information from an information disclosure statement submitted under 37 CFR 1.97(c).

#### Claims 1 and 16

Hashemi '052 cannot sustain a Section 102 rejection over the method and apparatus of amended claims 1 and 16 because it fails to identically disclose all the recited features of those claims, which include:

*defining an array of consecutive equal capacity data storage units ... allocating two or more adjacent data storage units in the array for storing user data entirely and at least one data storage unit in the array for storing fault tolerance data entirely.*  
(excerpt of claim 1, emphasis added)

*an array of consecutive equal capacity data storage units... wherein two or more adjacent data storage units of the array are allocated for storing user data entirely and at least one data storage unit of the array is allocated for storing fault tolerance data entirely.*  
(excerpt of claim 16, emphasis added)

The present embodiments as claimed contemplates an array of consecutive equal capacity data storage units, meaning there is no storage space between rows of the array (see, for example, paragraph [0043] lines 15-17). FIG. 6 of Hashemi '052 and the

description thereof, to which the Examiner refers in the rejection of claims 1 and 16, discloses an array of non-consecutive stripes, wherein the data stripes are allocated on one half of the devices and the mirrored data stripes are allocated on the other half of the devices, with undefined storage space therebetween. The same is true for FIGS. 2, 4A, 5, and 7 of Hashemi '052 (see, for example, Hashemi '052 col. 3 lines 43-44; col. 7 line 67 to col. 8 line 7). Hence, these embodiments of Hashemi '052 do not identically disclose the *array of consecutive equal capacity data storage units* of the present embodiments as claimed.

FIG. 1 of Hashemi '052 and the description thereof discloses stripes containing both original data and mirrored data, and hence does not identically disclose the *two or more adjacent data storage units of the array are allocated for storing user data entirely and at least one data storage unit of the array is allocated for storing fault tolerance data entirely* as claimed. FIG. 4B of Hashemi '052 and the description thereof discloses alternating stripes of original data and mirrored data, and hence does not identically disclose the *two or more adjacent data storage units of the array are allocated for storing user data entirely* as claimed.

Thus, Hashemi '052 cannot sustain the anticipatory rejection of claims 1 and 16 because it does not identically disclose all the recited features of the claims. Reconsideration and withdrawal of the rejection of claims 1 and 16 and the claims depending therefrom are respectfully requested.

#### Claim 21

The Examiner has failed to substantiate a *prima facie* case of anticipation by not providing evidence in the record that Hashemi '052 identically discloses all the recited features of claim 21, which include at least the following:

*the data structure comprising a pointer that when multiplied by a storage capacity of said data storage blocks and by the number of rows of data storage units allocated for storing user data, and to which an offset, if any, is added, produces a base address in each storage domain. (excerpt of claim 21)*

The basis for the Examiner's rejection relies on inherency:

Hashemi shows the claimed data structure having an array of equal capacity data storage units in Fig. 6....He does not explicitly show the claimed pointer, however it is inherent in his device since it must have a pointer to locate the various stripes and stripe units. A pointer is nothing more than an address and the calculations mentioned in the claim would produce the claimed base address when performed on the address of the first (or last, depending on orientation) stripe.  
(Office Action of 12/21/2006, pg. 4)

To establish inherency, the Examiner must show evidence that makes it clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981); MPEP 2112.

First, the skilled artisan readily recognizes the Examiner's assertion is unworkable for Hashemi '052. Namely, in order to computationally address the array as in claim 21 fundamentally requires that the rows be contiguous. That is, the address of any particular row in the array of claim 21 is a multiple of the block storage capacity. Again, Hashemi '052 in FIG. 6 clearly discloses non-contiguous rows, the data stripes being allocated on one half of the devices and the mirrored data stripes being allocated on the other half of the devices. Any workable mathematical structure for addressing the array of Hashemi '052 would have to compensate for the intervening rows that are not allocated to the array, which is neither contemplated by the present embodiments nor recited by the language of claim 21.

Further, the skilled artisan readily recognizes that the Examiner's assertion is not forthright because he implies that the mathematical structure recited by claim 21 is necessary to address any array. However, Hashemi '052 does indeed disclose the advantages of reducing computational overhead by employing mathematical structures, such as the rotational group, but Hashemi '052 does not even implicitly suggest the mathematical structure for addressing an array recited by the language of claim 21. (Hashemi '052, col. 8 lines 44-49) Rather, Hashemi '052 explicitly discloses conventional logical to physical mapping that does not employ the mathematical structure recited by the language of claim 21. (see, for example, Hashemi '052 col. 6 lines 48-50)

Clearly, the Examiner has not met his burden of substantiating evidence in the record making it clear to a skilled artisan that Hashemi '052 necessarily employs the mathematical structure recited by claim 21 in addressing an array. As such, the Examiner has not substantiated a *prima facie* case of anticipation because the cited reference does not identically disclose all the recited features of claim 21.

Accordingly, the examination resulting in this rejection is incomplete with regard to the Examiner's obligation to consider the patentability of the invention as claimed. 37 CFR 1.104(a)(1). Because the rejection is lacking the requisite *prima facie* basis, it also does not provide a reason for the rejection that is useful in aiding Appellant to judge the propriety of continuing the prosecution. 37 CFR 1.104(a)(2).

Reconsideration and withdrawal of the rejection of claim 21 and the claims depending therefrom are respectfully requested.

Absent the requested reconsideration, a Pre-Appeal Brief Panel must find in the underlying facts "substantial evidence" that adequately supports the Examiner's legal conclusion that the final rejection was proper. This approach is consonant with the Office's

obligation to develop an evidentiary basis for its factual findings to allow for judicial review under the substantial evidence standard that is both deferential and meaningful. *see In re Lee*.

Weighing the facts in this case, Applicant should not be forced to proceed to appeal. Particularly, this case is not in condition for appeal due at least to the unresolved factual issue that the Examiner has not substantiated the requisite *prima facie* case of anticipation.

#### Claim 25

For reasons similar to those discussed above for claim 21, the Examiner has also failed to substantiate a *prima facie* case of anticipation by not providing evidence in the record that Hashemi '052 identically discloses all the recited features of claim 25, which include at least the following:

*determining a domain and a physical address... applying a data storage unit pointer value to determine at least one domain to be accessed and to determine a row such that the row number minus one is multiplied by a capacity of said storage blocks and added to a base address to produce a physical address...*  
(excerpt of claim 25)

As in the rejection of claim 21, the basis for the Examiner's rejection relies on inherency: "The claimed calculations are necessary to access the desired stripe unit within the array." (Office Action of 12/21/2006, pg. 5) For the same reasons set forth above for claim 21, the Examiner's reasoning is insufficient to substantiate a basis upon inherency because the mathematical structure of addressing the array in claim 25 is unworkable in Hashemi '052, and because Hashemi '052 discloses conventional logical to physical mapping that does not employ the mathematical structure recited by the language of claim 25.

Clearly, the Examiner has not met his burden of substantiating evidence in the record making it clear to a skilled artisan that Hashemi '052 necessarily employs the mathematical

structure recited by claim 25 in addressing an array. As such, the Examiner has not substantiated a *prima facie* case of anticipation because the cited reference does not identically disclose all the recited features of claim 25.

Accordingly, the examination resulting in this rejection is incomplete with regard to the Examiner's obligation to consider the patentability of the invention as claimed. 37 CFR 1.104(a)(1). Because the rejection is lacking the requisite *prima facie* basis, it also does not provide a reason for the rejection that is useful in aiding Appellant to judge the propriety of continuing the prosecution. 37 CFR 1.104(a)(2).

Reconsideration and withdrawal of the rejection of claim 25 and the claims depending therefrom are respectfully requested.

Absent the requested reconsideration, a Pre-Appeal Brief Panel must find in the underlying facts "substantial evidence" that adequately supports the Examiner's legal conclusion that the final rejection was proper. This approach is consonant with the Office's obligation to develop an evidentiary basis for its factual findings to allow for judicial review under the substantial evidence standard that is both deferential and meaningful. *see In re Lee*. Weighing the facts in this case, Applicant should not be forced to proceed to appeal. Particularly, this case is not in condition for appeal due at least to the unresolved factual issue that the Examiner has not substantiated the requisite *prima facie* case of anticipation.

#### Rejection Under Section 103

Claims 13, 14, 18, 19, and 20 stand finally rejected as being unpatentable over Hashemi '052. This rejection is respectfully traversed.



Claims 13 and 14 are allowable because they depend from an allowable independent claim, for reasons set forth above, and recite additional limitations thereto. Reconsideration and withdrawal of the rejection of claims 13 and 14 are respectfully requested.

As for the rejection of claim 18, Applicant agrees with the Examiner to the extent that Hashemi '052 does not teach the recited *reallocating* step. (Office Action of 12/21/2006, pg. 8) However, the Examiner's rejection is clearly reversible error because he has not substantiated the requisite *prima facie* case that it would be obvious to modify the teaching of Hashemi '052 to arrive at the present embodiments as recited by the language of claim 18.

Applicant stated in the record that the Examiner's previous obviousness rejection over Menon '984 relied on an unsubstantiated assertion that the *reallocation* step is obvious. Accordingly, Applicant requested that the Examiner substantiate the rejection by either citing a reference teaching the claimed feature, or provide an affidavit in accordance with 37 CFR 1.104(d)(2). (Applicant's Response of 11/3/2006, pg. 13) However, in the subsequent Office Action of 12/21/2006 the Examiner neither cited a reference nor provided an affidavit to substantiate the rejection.

The rejection of claim 18 is clearly reversible error because the Examiner is not at liberty to summarily ignore Applicant's request in this matter: "the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons." (37 CFR 1.104(d)(2), emphasis added)

Notwithstanding the Examiner's failure to substantiate the rejection by citation or affidavit, the Examiner's reasoning in the Office Action of 12/21/2006 is furthermore contrary to what Hashemi '052 actually teaches. For example, the only disadvantage that Hashemi '052 attributes to RAID 1 is the lack of load balancing. Despite the Examiner's

attempted extrapolation of it, Hashemi '052 does not suggest reallocating the data storage units in the event a RAID 1 memory space becomes full. (see, for example, Hashemi '052 col. 2 lines 6-12) In fact, in the only discussion of a circumstance where the disc

arrangement is not suited for the desired RAID configuration (RAID 10), Hashemi '052 discloses either not using all the discs or adding additional discs in order to remain with the RAID 10 configuration, not reallocating the memory space to a different configuration as in the present embodiments as claimed. (see, for example, Hashemi '052 col. 2 lines 40-56)

Clearly, the Examiner has not met his burden of substantiating evidence in the record that the cited reference teaches or suggests all the recited features of claim 18. As such, the Examiner has not substantiated a *prima facie* case of obviousness.

Accordingly, the examination resulting in this rejection is incomplete with regard to the Examiner's obligation to consider the patentability of the invention as claimed. 37 CFR 1.104(a)(1). Because the rejection is lacking the requisite *prima facie* basis, it also does not provide a reason for the rejection that is useful in aiding Appellant to judge the propriety of continuing the prosecution. 37 CFR 1.104(a)(2).

Reconsideration and withdrawal of the rejection of claim 18 and the claims depending therefrom are respectfully requested.

Absent the requested reconsideration, a Pre-Appeal Brief Panel must find in the underlying facts "substantial evidence" that adequately supports the Examiner's legal conclusion that the final rejection was proper. This approach is consonant with the Office's obligation to develop an evidentiary basis for its factual findings to allow for judicial review under the substantial evidence standard that is both deferential and meaningful. *see In re Lee*.

Weighing the facts in this case, Applicant should not be forced to proceed to appeal. Particularly, this case is not in condition for appeal due at least to the unresolved factual issue that the Examiner has not substantiated the requisite *prima facie* case of obviousness.

Conclusion

The Applicant respectfully requests that the Examiner enter the above amendments and allow all of the pending claims.

Applicant has also requested a telephone interview to discuss any unresolved issues after the Examiner considers this response. Absent the requested reconsideration, the interview is necessary to address the unresolved issues making this case not in condition for appeal.

The Examiner is invited to contact the below signed Attorney should any questions arise concerning this response.

Respectfully submitted,

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